Caltrans

Water Quality NewsFlash

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Hydromodification – *Santa Clara Valley develops innovative plan* – The Santa Clara Valley Urban Runoff Pollution Prevention Program includes 13 cities, the County, and the Santa Clara Valley Water District. This program is responsible for implementing stormwater controls within its jurisdiction as specified in its third generation municipal stormwater permit. In October 2001, the San Francisco Regional Board amended the permit to include requirements for treatment of post-construction stormwater runoff from specific types of development. These treatment requirements included numeric design standards similar to the "SUSMP" (Standard Urban Stormwater Mitigation Plan) provisions that have been applied to Southern California municipal permittees.

The permit amendment also required that additional runoff resulting from increases in impervious surfaces (roofs, pavement, etc.) not adversely affect watercourses downstream from a project. These adverse effects on watercourses, such as increased erosion and sedimentation, are collectively referred to as "hydromodification." In a divergence from previous permits issued in the state, the San Francisco Board required that the adverse effects be controlled through implementation of a detailed *Hydromodification Management Plan* (HMP). The HMP must be developed by the Program and approved by the Board. It describes the methods that will be implemented by the permittees to ensure that projects do not result in increased flows which could damage waterways. Similar requirements have now been added to other San Francisco Bay Area municipal stormwater permits.

Most other permits in the state, including the Phase II General Permit, require stormwater programs to control post-development peak runoff rates where the increased peak discharge rate will result in increased potential for downstream erosion. However, these requirements currently tend to be very general and do not mandate the development of a specific control plan.

There is increasing interest in hydromodification impacts. After development in an area, less rainwater typically infiltrates into the ground. Instead it runs off immediately from roof downspouts, curbs, and streets directly into storm drains, which subsequently discharge to streams. This increase in flows in developed areas can cause serious scouring of the streams. Streambeds become deeper and wider. This sediment may be deposited in lower reaches. Stream biota can also be "washed out" by the increased volume and velocity of the runoff. In addition, the lack of infiltration decreases groundwater recharge and the groundwater is consequently less able to contribute to stream flows during dry periods. The overall result is increased flows during wet weather and decreased flows during dry weather. On a watershed basis, this disruption of the natural hydrologic cycle and the scouring/sedimentation can have a greater environmental impact than the pollutants contributed by the runoff.

The Santa Clara program is possibly the furthest along in the state in developing a comprehensive hydromodification control program. The revised public review draft of their plan is posted at: http://www.scvurppp-w2k.com/hmp_web_110404/HMP_report.htm A literature review providing a detailed description of hydromodification issues is also posted: http://www.scvurppp-w2k.com/hmp_web_110404/hmp_appendices/Appendix_B_HMP_lit_review.pdf

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